

CLAIMS

1. A bending machine for producing cutting dies from material, said bending machine comprising:
 - a) a feeder for accepting said material;
 - b) a bending tool accepting said material from said feeder for bending, and
 - c) a support surface for supporting said material upon output from said bending tool.
2. The machine of claim 1 further comprising a supply device having a turntable for supporting a coil of said material.
3. The machine of claim 2 wherein said turntable operates in both forward and reverse directions.
4. The machine of claim 1 wherein said feeder is a clamping device, which when engaged clamps firmly to each side of said material and when disengaged does not contact said material.
5. The machine of claim 4 wherein said feeder is driven along a feeder screw and a guide, to ensure said material passes linearly through said machine.
6. The machine of claim 5 further comprising a forward clamping device adjacent said bending tool, said forward clamping device engaging said material when said feeder is disengaged.
7. The machine of claim 1 further comprising a material cleaner said material cleaner comprising one or more spray nozzles and one or more wipers.

8. The machine of claim 7 wherein said material cleaner is connected to said bending machine by a bracket having one or more pivot points, said pivot points permitting said material cleaner to adjust to bends in said material.

9. The machine of claim 1 further comprising a straightener, for the purpose of straightening said material prior to said material entering said bending tool.

10. The machine of claim 9 wherein said supply device comprises a turntable for supporting and supplying a coil of said material.

11. The machine of claim 9 wherein said straightener comprises a series of front and rear rollers, said rear rollers each being installed in an insert, the distance between said front and rear rollers being adjustable by a tightening bolt applied to an insert.

12. The machine of claim 11 wherein said straightener comprises a hinged lid, said lid opening to allow access to said front and rear rollers, said lid being opened and closed by the use of a swing handle and locked in place by one or more adjustable stops.

13. The machine of claim 1 further comprising a heating unit for heating said material prior to bending or nicking said material.

14. The machine of claim 13 wherein said heating unit comprises a heat concentrator, said heat concentrator having a single head positioned adjacent to said material prior to heating.

15. The machine of claim 13 wherein said heating unit may be instructed to heat all or a portion of an edge of said material.

16. The machine of claim 14 wherein said heat concentrator heats said material by induction.

17. The machine of claim 16 wherein said heating unit is adjustable for both the amount of electricity provided to said heat concentrator and the duration of heating said material.

18. The machine of claim 13 wherein said heating unit comprises a heat concentrator and a shoe guide, said shoe guide designed to direct said material to said heat concentrator.

19. The machine of claim 18 wherein said heat concentrator is adjacent to one side of said material when heating said material.

20. The machine of claim 1 further comprising a nicking unit, to create nicks in said material, said nicking unit utilizing a male die and a female die.

21. The machine of claim 20 wherein said female die has a plurality of nicking forms, said female die being adjustable to match a nicking form with said male die.

22. The machine of claim 1 further comprising a heating unit and a nicking unit wherein said heating unit and said nicking unit are disposed on intersecting planes such that said material need not be moved once in position to engage either or both of said heating unit and said nicking unit.

23. The machine of claim 1 further comprising a printing unit, said printing unit located before said bending tool to print information on said material.

24. A method of creating a cutting die, said method comprising the steps of:

- extracting material from a source of material;
- feeding said material to a bending tool;
- bending said material;
- supporting said material after bending;
- repeating steps a) through d) until said cutting die is complete; and
- detaching said cutting die from said source of material, after the completion of step e).

The method of claim 24 further comprising the step of cleaning said material after said material has been extracted from said source of material and prior to feeding said material.

25. The method of claim 24 further comprising the step of straightening said material once said material has been extracted from said source of material but before bending said material.

26. The method of claim 24 further comprising the step of heating said material prior to said bending.

27. The method of claim 24 further comprising the step of advancing said material past said bending tool to a heating unit and then returning said material to said bending tool for bending.

28. The method of claim 24 further comprising the step of nicking said material.

29. The method of claim 29 further comprising the step of heating said material prior to nicking.

30. The method of claim 30 further comprising the step of advancing said material past said bending tool to a heating unit for heating and then nicking said material and retracting said material toward said bending tool.

31. The method of claim 24 further comprising the step of printing information on said material prior to said material being bent by said bending tool.